INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3400

UNION PACIFIC RAILROAD COMPANY

IN RE ACCIDENT

AT GREEN RIVER, WYO., ON

MARCH 24, 1951

SUMMARY

Date:	March 24, 1951	
Railroad:	Union Pacific	
Location:	Green River, Wyo.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 1468 East	: Extra 1466 East
Engine numbers:	Diesel-electric units 1468A, 1468B and 1468C	: Diesel-electric units 1466A, 1466B and 1466C
Consists:	70 cars, caboose	: 64 cars, caboose
Estimated speeds:	Standing	: 30 m. p. h.
Operation:	Signal indications; yard limits	
Tracks:	Double; 4° curve; 0.70 percent descending grade eastward	
Weather:	Clear	
Time:	5:50 a. m.	
Casualties:	3 injured	
Cause:	Failure properly to control speed of following train on descending grade	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3400

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

UNION PACIFIC RAILROAD COMPANY

June 29, 1951

Accident at Green River, Wyo., on March 24, 1951, caused by failure properly to control the speed of the following train on a descending grade.

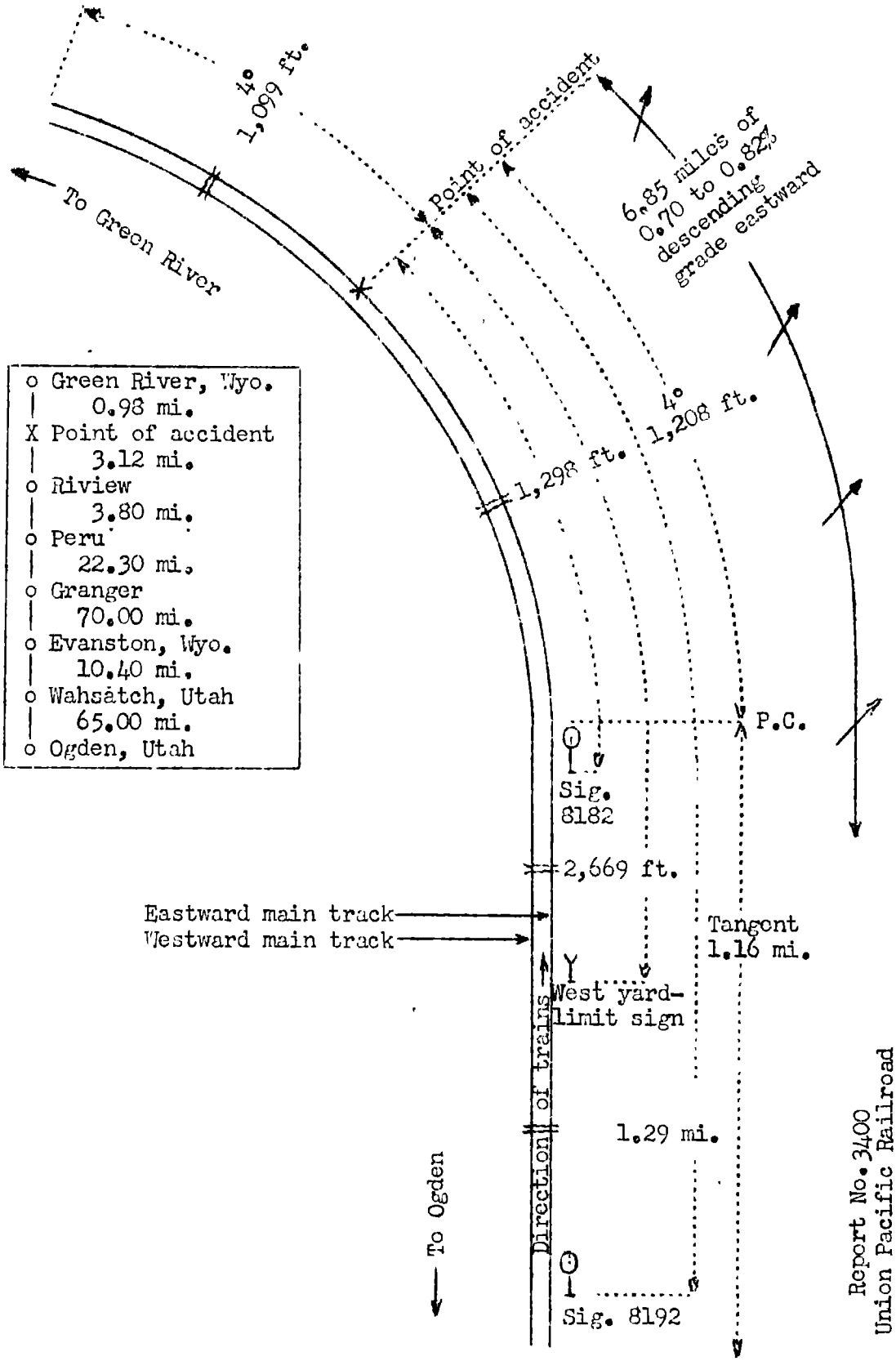
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On March 24, 1951, there was a rear-end collision between two freight trains on the Union Pacific Railroad at Green River, Wyo., which resulted in the injury of three employees.

---

[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3400
Union Pacific Railroad
Green River, Wyo.
March 24, 1951

Location of Accident and Method of Operation

This accident occurred on that part of the Wyoming Division extending between Ogden, Utah, and Green River, Wyo., 175.6 miles. This is a double-track line, over which trains moving with the current of traffic are operated by signal indications. The accident occurred on the eastward main track, within yard limits at Green River, at a point 2,669 feet east of the west yard-limit sign. From the west there are a tangent 1.16 miles in length, and a 4° curve to the left 1,208 feet to the point of accident and 1,099 feet eastward. The grade for east-bound trains varies between 0.70 percent and 0.82 percent descending throughout a distance of 6.85 miles immediately west of the point of accident. At the point of accident the grade is 0.70 percent descending eastward.

Automatic signals 8192 and 8182, governing east-bound movements on the eastward main track, are located, respectively, 1.29 miles and 1,298 feet west of the point of accident. These signals are of the color-light type and are approach lighted. Each signal displays three aspects. The aspects applicable to this investigation and their corresponding indications and names are as follows:

Signal	Aspect	Indication	Name
8192	Yellow	Immediately reduce speed to 20 miles per hour, and as much slower as necessary in order to be able to stop before passing the next signal.	Approach signal.
8182	Red	Stop.	Stop signal.

The controlling circuits are so arranged that, when a train is occupying the block of signal 8182, signal 8192 indicates Approach and signal 8182 indicates Stop.

This carrier's operating rules read in part as follows:

DEFINITIONS

Restricted Speed.--Proceed prepared to stop short of train, obstruction, or switch not properly lined, and be on lookout for broken rail, or anything that may affect movement of train.

93. Within yard limits the main track may be used, protecting against first-class trains.

* * *

All trains and engines must move within yard limits prepared to stop unless the track is seen or known to be clear. * * *

Note.--Limits of yards are indicated by yard limit signs and the location of yards is shown in time-table.

The maximum authorized speed for freight trains was 50 miles per hour, but it was restricted to 25 miles per hour in the immediate vicinity of the point where the accident occurred.

Description of Accident

Extra 1468 East, an east-bound freight train, consisted of Diesel-electric units 1468A, 1468B and 1468C, coupled in multiple-unit control, 70 cars and a caboose. This train passed Granger, the last open office, 29.22 miles west of the point of accident, at 4:55 a. m., and stopped on the eastward main track at Green River at 5:35 a. m. A few minutes later the train moved eastward and again stopped, with the rear end at a point 2,669 feet east of the west yard-limit sign. About 5:50 a. m. the rear end was struck by Extra 1466 East.

Extra 1466 East, an east-bound freight train, consisted of Diesel-electric units 1466A, 1466B and 1466C, coupled in multiple-unit control, 64 cars and a caboose, 5,010 tons. This train passed Granger, the last open office, at 5:12 a. m., passed signal 8192, which indicated Approach, passed signal 8182, which indicated Stop, and while moving at an estimated speed of 30 miles per hour it struck the rear end of Extra 1468 East.

The caboose and the rear five cars of Extra 1468 East were derailed. The caboose was destroyed and the rear five cars were badly damaged. The Diesel-electric units of Extra 1466 East were derailed to the south and stopped parallel to the eastward main track, with the front end of the first unit about 230 feet east of the point of collision. Separations occurred between each of the Diesel-electric units. The first and the third Diesel-electric units overturned to the south and stopped on their right sides.

The second Diesel-electric unit overturned to the north and stopped on its left side. The first to the thirty-first cars, inclusive, were derailed and stopped in various positions on or near the tracks. The thirty-second and the thirty-third cars were derailed and stopped in line with the eastward main track. Oil and other inflammable materials from derailed cars became ignited. The three Diesel-electric units were destroyed. The first to the thirty-first cars, inclusive, were badly damaged and the thirty-second and the thirty-third cars were slightly damaged.

The weather was clear at the time of the accident, which occurred about 5:50 a. m.

The engineer, the fireman and the front brakeman of Extra 1466 East were injured.

The Diesel-electric units of Extra 1466 East were provided with 24-RL and dynamic brake equipment. An emergency valve was located in the control compartment of the first unit. Each unit was equipped with two air compressors, the regulating devices of which were adjusted for main-reservoir pressure of 140 pounds. The feed valve was adjusted to supply brake-pipe pressure of 90 pounds. The Diesel-electric units were provided with a dynamic brake interlock to prevent the simultaneous application of the air brakes and dynamic brake of the unit. This feature functions automatically and during an emergency application of the air brakes the dynamic brake operation is nullified and the air brakes of the Diesel-electric unit are permitted to apply. Diesel-electric unit 1466A was equipped with an oscillating red headlight so arranged that it would be displayed and the conventional headlight would be extinguished by an emergency application of the air brakes or by the depletion of brake-pipe pressure below a pre-determined pressure. This condition would continue until brake-pipe pressure was restored and the pressure switch was reset manually.

Discussion

Extra 1468 East stopped on the eastward main track within yard limits at Green River about 5:35 a. m. A few minutes after the train stopped it moved eastward and again stopped on the eastward main track, with the rear end 2,669 feet east of the west yard-limit sign. The conductor and the flagman were in the caboose. The conductor said that as Extra 1466 East approached he heard a repeated

sounding of the pneumatic horn of the Diesel-electric unit and warned the flagman. They alighted from the north side of the caboose a few seconds before the collision occurred. They said that they observed the oscillating red headlight of the approaching train and saw sparks from the wheels of the Diesel-electric units.

Extra 1466 East was passed by Extra 1468 East at Evanston, 99.22 miles west of the point of accident. Engine crews of Extra 1466 East were changed at Evanston and the incoming engineer informed the engineer who relieved him that the train was short and heavy. The brakes were applied while the train was stopped on the siding at Evanston, and when the conductor and the flagman inspected the train at that point they found the brakes applied on each car. Extra 1466 East departed from Evanston at 3:05 a. m., 10 minutes after the preceding train had departed.

As Extra 1466 East was moving on the descending grade west of Green River the engineer and the front brakeman were maintaining a lookout ahead from their respective positions in the control compartment of the first Diesel-electric unit. The fireman was patrolling the engine rooms of the Diesel-electric units. The conductor and the flagman were in the caboose. The brakes of this train had been tested and had functioned properly when used en route. The engineer said that the dynamic brake was used and was sufficient to control the speed of the train throughout a distance of more than 2 miles on the descending grade east of Peru, 6.92 miles west of the point of accident. When the speed of the train increased slightly he made a service application of about 25 pounds about 4 miles west of the point of accident. The speed of the train was not materially reduced by this brake application, and about 1 mile farther eastward he placed the brake valve in emergency position. He said that the speed of the train increased momentarily after the emergency application was made. He then moved the independent brake valve to application position and observed that the gauge indicated brake-cylinder pressure in excess of 85 pounds. Signal 8192 indicated Approach and signal 8182 indicated Stop. When the emergency application of the brakes failed to reduce the speed, he warned the fireman and the front brakeman that the train was out of control. Before alighting from the unit, he observed that the brakes were heavily applied on all the Diesel-electric units, but he did not observe whether they were applied on the train. The engineer thought the speed did not exceed 40 miles per hour on the descending grade immediately west of the point

of accident, and that it was 15 to 17 miles per hour on an ascending grade west of Peru. The fireman said that he returned to the control compartment when the train was about 3 miles west of the point of accident. He said that after the engineer placed the brake valve in emergency position and called a warning, he opened the emergency valve in the cab but there was no exhaust from it. Before he alighted from the train he observed that sparks were flying from the wheels of all the Diesel-electric units, but he did not observe whether the train brakes were applied. The front brakeman said that the engineer made the initial brake-pipe reduction about 4 miles west of the point of accident. When the speed of the train was not reduced by the brake application, the engineer made a further brake-pipe reduction and soon afterward placed the brake valve in emergency position. The emergency application was made before signal 8192 was visible from the control compartment of the Diesel-electric unit. The front brakeman remained on the unit and sounded a warning on the pneumatic horn until a few seconds before the collision occurred.

The conductor said the caboose gauge indicated 90 pounds brake-pipe pressure when the train was about 4 miles west of the point of accident. He said he thought the dynamic brake was applied, because the speed of the train was being controlled throughout a distance of more than 2.5 miles on the descending grade without any reduction of brake-pipe pressure. He then observed that brake-pipe pressure was reduced to 65 pounds, as indicated on the caboose gauge. The speed was about 35 miles per hour but it was not reduced by the brake application. When brake-pipe pressure had been reduced to 50 pounds without any material reduction in the speed of the train, he instructed the flagman to watch for the indication of the next roadway signal. When the flagman called the Stop indication of signal 8182, the conductor immediately opened the conductor's valve. The gauge indicated 40 pounds brake-pipe pressure when he opened the valve, and the exhaust was of proportionate volume. He said he thought the speed of the train was reduced after the conductor's valve was opened. The flagman said that he had observed the brakes applied at various points en route. He had closely observed the caboose gauge until the brake-pipe pressure was reduced to 50 pounds, when the conductor instructed him to watch for the indication of the next signal. The other members of the crew agreed substantially with the engineer with respect to the speed of the train between Peru and the point of accident.

After the accident occurred the throttle of Diesel-electric unit 1466A was found in "off" position. The transition lever was in No. 4 position. The automatic brake-valve was in emergency position and the independent brake-valve was in application position. Examination of the wheels of the Diesel-electric units which were not damaged by the fire disclosed indications of extremely heavy braking. There were numerous flat spots varying in length from 2 to 3 inches and indications of molten metal at numerous points on the treads of all the wheels. The wheels and the brake shoes of the derailed cars showed indications of overheating from heavy braking. The undamaged cars of the train showed similar indications of heavy braking and excessive heating of wheels and brake shoes. Immediately after the accident occurred, the conductor proceeded to the front of the train and observed that the brakes were applied on those cars which were not derailed. A test of the brakes of the rear 33 cars and of the caboose disclosed that the piston travel on 5 cars was excessive. The caboose and the rear five cars were equipped with K-type brakes and the other cars were equipped with AB-type brakes.

Extra 1466 East maintained an average speed of 46.1 miles per hour over the 29.22 miles between Granger and the point of accident. There was a speed indicating and recording device in the operating compartment of the first unit, but it was not operating. Throughout more than 5 miles of this distance, between points about 17 and 22 miles east of Granger, the average grade was 0.77 percent ascending eastward, and, according to statements of members of the crew, the speed was reduced to about 15 or 20 miles per hour on the ascending grade. From this it is apparent that the speed over part of the distance between Granger and the point of accident was considerably higher than 46.1 miles per hour. The overheated condition of the wheel treads and the brake shoes indicates that the brakes were applied before the accident occurred and were effective. It appears that the comparatively short and heavy train was permitted to attain a speed too high for it to be stopped between the point of the first brake application and the point of accident.

This accident occurred in yard limits and, under the rules of this carrier governing operation of trains within yard limits, Extra 1466 East was required to be operated in such a manner that it could be stopped short of a preceding train.

Cause

It is found that this accident was caused by failure properly to control the speed of the following train on a descending grade.

Dated at Washington, D. C., this twenty-ninth day of June, 1951.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.